

A-1

**U.S. Patent Nos. 6,337,746 & 6,618,157**

**ATTACHMENT 1**

**Overview of Brother MFC-5490CN Printer**

Plaintiff accuses the making, using, selling, offering for sale and importation of Brother color printer models MFC-795CW, MFC-990CW, DCP-165C, DCP-395CN, MFC-250C, MFC-255C, MFC-295C, MFC-3360C, MFC-495CW, MFC-5890CN, DCP-110C, DCP-120C, DCP-J125, DCP-130C, DCP-330C, DCP-350C, DCP-385C, DCP-585CW, MFC-210C, MFC-J220, MFC-230C, MFC-240C, MFC-J265W, MFC-J270W, MFC-290C, MFC-3220C, MFC-3240C, MFC-3320C, MFC-3340C, MFC-3420C, MFC-3820CN, MFC-J410W, MFC-J415w, MFC-420CN, MFC-4420C, MFC-465CN, MFC-4820C, MFC-490CW, MFC-5440CN, MFC-5460CN, MFC-5490CN, MFC-5840CN, MFC-5860CN, MFC-5895CW, MFC-J615W, MFC-620CN, MFC-J630W, MFC-640CW, MFC-685CW, MFC-790CW, MFC-795CW, MFC-820CW, MFC-885CW, MFC-990CW, MFC-J6510DW, MFC-6490CW, MFC-J6710DW, MFC-6890CDW, MFC-J6910w of constituting direct infringement of U.S. Patent Nos. 6,337,746 and 6,618,157 (hereinafter “the Patents-in-Suit”). As an exemplary and typical model, the MFC-5490CN printer is charted below. The term “Accused System and Method” means the foregoing printer models sold by Brother and all other models that are substantially similar.

Plaintiff further accuses Brother of indirectly infringing the Patents-in-Suit through providing, authorizing and instructing regarding the Accused System and Method to others, including Brother’s customers. Installing the Accused System and Method and the operation thereof directly infringe the asserted claims. Brother intends to cause infringement by its customers and users. Brother instructs users to install the software and associated hardware of the Accused System and Method. As such, Brother instructs users to configure and operate the Accused System and Method in an infringing manner. Brother also provides installation, maintenance and support services for the Accused System and Method, including providing instruction, tools, manuals, guides, online materials, support and consulting services.

The asserted claims include elements that are implemented, at least in part, by software in the Accused System and Method. The precise processes and algorithms used in them are held secret, at least in part, and are not publicly available in their entirety. An analysis of Brother’s documentation is necessary to fully and accurately describe all infringing features and functionality of the Accused System and Method and, accordingly, plaintiff reserves the right to supplement these contentions once such information is made available to plaintiff. Furthermore, plaintiff reserves the right to revise these contentions in view of the Court’s final claim construction in this action.

U.S. Patent Nos. 6,337,746 & 6,618,157



U.S. Patent No. 6,337,746

1. Apparatus for printing a graphic image on a substrate, comprising:

The Accused System and Method is designed to print on a substrate. For example, the Accused System and Method is used for cut-sheet materials.

<b>Print</b>		<a href="#">back to top</a>
Print Technology	Color Inkjet Technology	
Maximum Printing Size	8.5" x 14" (Legal)	
Consumable Type	4-Cartridge Ink System	
Max. Black Print Speed (ppm)	35ppm Black†	
Max. Color Print Speed (ppm)	28ppm Color†	
Print Resolution (maximum dpi)	Up to 6000 x 1200 dpi‡	
Borderless Printing	Yes‡	
Standard Input Paper Capacity (sheets)†	Up to 150-Sheet Input Capacity	
Standard Interface(s)	Hi-Speed USB 2.0, Ethernet, PictBridge Interface and USB Flash Memory	
Printer Driver Compatibility†	Windows® / Mac OS®	
Mobile device printing app†	Brother® iPrint&Scan free app download for wireless printing (JPEG images) from and scanning to your Apple® iPhone®, iPad™, and iPod touch® or Android™ smartphones	
Emulation(s)	GDI	
Secure Print Function	No	
Maximum Monthly Duty Cycle†	4,000 Printed Pages	
Recommended Monthly Print Volume†	250 - 2000 Printed Pages	

<http://www.brother-usa.com/MFC/modeldetail.aspx?PRODUCTID=MFC5490CN&tab=spec>  
(3/24/11)

## U.S. Patent Nos. 6,337,746 &amp; 6,618,157

a computer containing at least one motherboard which carries a data bus and a random access memory, said computer being controlled by an operating system;

The Accused System and Method is driven by a computer containing a motherboard with a data bus and memory. The computer is controlled by an operating system.

### Computer requirements

SUPPORTED OPERATING SYSTEMS AND SOFTWARE FUNCTIONS								
Computer Platform & Operating System Version		Supported PC Software Functions	PC Interface	Processor Minimum Speed	Minimum RAM	Recommended RAM	Required HARD Disk Space	
							For Drivers	For Applications
Windows® Operating System <sup>1</sup>	2000 Professional <sup>5</sup>	Printing, PC FAX <sup>4</sup>  Scanning, Removable Disk	USB Ethernet	Intel® Pentium® II or equivalent	64 MB	256 MB	110 MB	340 MB
	128 MB							
	XP Home <sup>2 5</sup> XP Professional <sup>2 5</sup>							
	XP Professional x64 Edition <sup>2</sup>			256 MB	512 MB			
	Windows Vista® <sup>2</sup>			512 MB	1 GB	600 MB	530 MB	
				Intel® Pentium® 4 or equivalent 64-bit (Intel® 64 or AMD64) supported CPU				
				Intel® Pentium® 4 or equivalent 64-bit (Intel® 64 or AMD64) supported CPU				
Macintosh® Operating System <sup>6</sup>	Mac OS® X 10.2.4 - 10.4.3	Printing, PC FAX Send <sup>4</sup> Scanning, Removable Disk	USB <sup>3</sup> Ethernet	PowerPC G4/G5	128 MB	256 MB	80 MB	400 MB
				PowerPC G3 350MHz				
	Mac OS® X 10.4.4 or greater	Printing, PC FAX Send <sup>4</sup> Scanning, Removable Disk		PowerPC G4/G5, Intel® Core™ Processor	512 MB	1 GB		

[http://welcome.solutions.brother.com/bsc/public\\_s/id/pdf/req/mfc5490cn\\_all/mfc5490cn\\_all\\_pcreq\\_us\\_ot\\_en.pdf](http://welcome.solutions.brother.com/bsc/public_s/id/pdf/req/mfc5490cn_all/mfc5490cn_all_pcreq_us_ot_en.pdf) (3/24/11)

#### Full Driver & Software Package

We recommend this download to get the most functionality out of your Brother machine. This is a comprehensive file containing available drivers and software for the Brother machine.

Language	Version	Size	Release Date	File
English	B1	40.90MB	03/04/2009	<a href="#">Download &amp; Information</a>

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#### Utilities/Windows® XP Home/Professional

##### BRAdmin Light

The Brother BRAdmin Light software is designed to run on Microsoft® Windows® and the Apple Mac OS® X environment. By using the BRAdmin light software it's possible to change some network settings. This software is not compatible with any Brother device using the NC-2200w print server.

[Click here to view OpenSSL License.](#)

Language	Version	Size	Release Date	File
English	1.18.0001	2.73MB	06/25/2010	<a href="#">Download &amp; Information</a>

[http://welcome.solutions.brother.com/bsc/public/us/us/en/dlf/download\\_index.html?reg=us&c=us&lang=en&prod=mfc5490cn\\_all&dld=&flang=English&os=7&type2=-1](http://welcome.solutions.brother.com/bsc/public/us/us/en/dlf/download_index.html?reg=us&c=us&lang=en&prod=mfc5490cn_all&dld=&flang=English&os=7&type2=-1) (3/24/11)

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**15** Before you install

- a** Make sure your machine is connected to the power and your Macintosh® is ON. You must be logged on with Administrator rights.

**Important:**


- For Mac OS® X 10.2.0 to 10.2.8 users, upgrade to Mac OS® X 10.2.4 or greater. (For the latest information for Mac OS® X, visit: <http://solutions.brother.com/>.)
- Make sure there are no memory cards or a USB Flash memory drive inserted.

**16** Connect the USB cable**Important:**

- DO NOT connect the machine to a USB port on a keyboard or a non-powered USB hub.
- Connect the machine directly to your Macintosh®.

- a** Lift the scanner/cover until it locks securely into the open position.






- b** Connect the USB cable to the USB socket marked with a  symbol. You will find the USB socket inside the machine on the right as shown below.



- c** Carefully route the USB cable through the trench and out the back of the machine as shown below, and connect the cable to your Macintosh®.

**Important:**

Make sure that the cable does not restrict the cover from closing, or an error may occur.

- d** Lift the scanner cover to release the lock . Gently push the scanner cover support down  and close the scanner cover  using both hands.



[http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002387/mfc5490n\\_usaeng\\_qsg.pdf](http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002387/mfc5490n_usaeng_qsg.pdf) (3/25/11)

[http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002387/mfc5490n\\_usaeng\\_qsg.pdf](http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002387/mfc5490n_usaeng_qsg.pdf) (3/25/11)

The Accused System and Method stores image data in RAM.

SUPPORTED OPERATING SYSTEMS AND SOFTWARE FUNCTIONS								
Computer Platform & Operating System Version		Supported PC Software Functions	PC Interface	Processor Minimum Speed	Minimum RAM	Recommended RAM	Required HARD Disk Space	
							For Drivers	For Applications
Windows® Operating System <sup>1</sup>	2000 Professional <sup>5</sup>	Printing, PC FAX <sup>4</sup>	USB Ethernet	Intel® Pentium® II or equivalent	64 MB	256 MB	110 MB	340 MB
	XP Home <sup>2</sup> 5 XP Professional <sup>2</sup> 5	Scanning, Removable Disk			128 MB			
	XP Professional x64 Edition <sup>2</sup>			64-bit (Intel® 64 or AMD64) supported CPU	256 MB	512 MB		
	Windows Vista® <sup>2</sup>			Intel® Pentium® 4 or equivalent 64-bit (Intel® 64 or AMD64) supported CPU	512 MB	1 GB	600 MB	530 MB
Macintosh® Operating System <sup>6</sup>	Mac OS® X 10.2.4 - 10.4.3	Printing, PC FAX Send <sup>4</sup>	USB <sup>3</sup> Ethernet	PowerPC G4/G5 PowerPC G3 350MHz	128 MB	256 MB	80 MB	400 MB
	Mac OS® X 10.4.4 or greater	Printing, PC FAX Send <sup>4</sup>		PowerPC G4/G5, Intel® Core™ Processor	512 MB	1 GB		

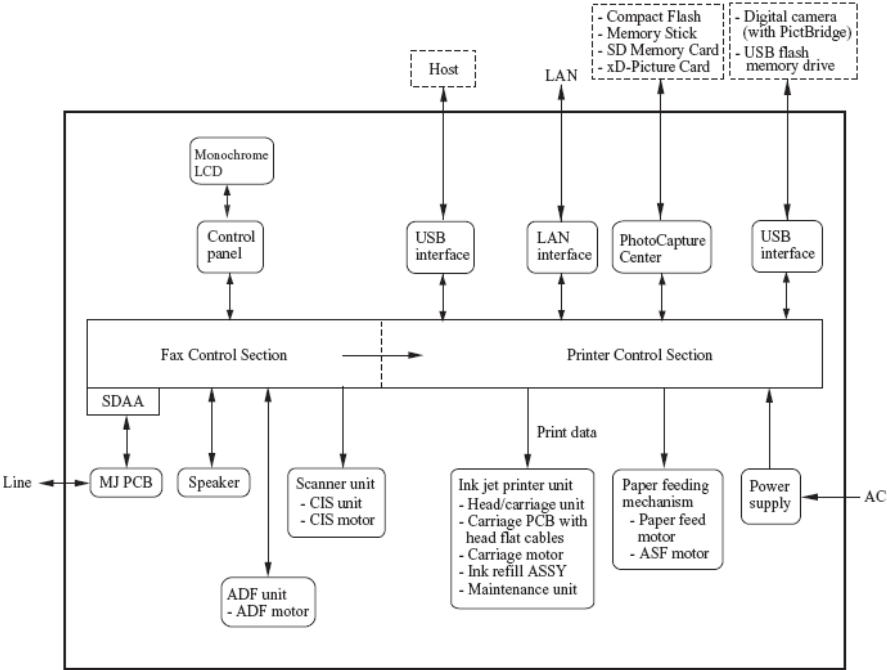
[http://welcome.solutions.brother.com/bsc/public\\_s/id/pdf/req/mfc5490cn\\_all/mfc5490cn\\_all\\_preq\\_us\\_ot\\_en.pdf](http://welcome.solutions.brother.com/bsc/public_s/id/pdf/req/mfc5490cn_all/mfc5490cn_all_preq_us_ot_en.pdf) (3/24/11)



U.S. Patent Nos. 6,337,746 & 6,618,157

at least one interface card connected to said data bus and having a serial port connected to the data bus, a printing device interface, and means for transferring stored image data from said random access memory to said printing device interface;

The Accused System and Method incorporate an interface card connected to a data bus. The interface card includes serial ports (including Ethernet and/or USB).

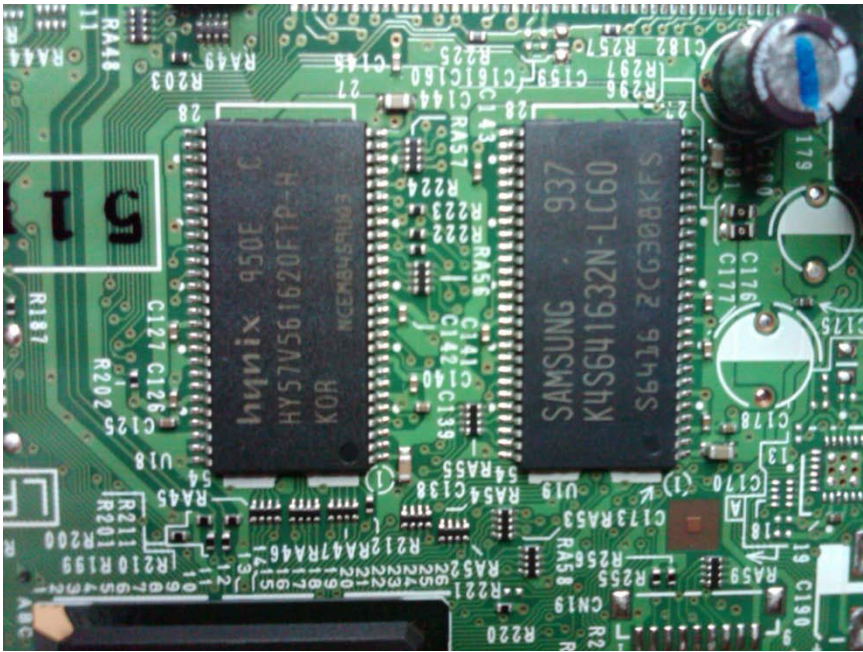
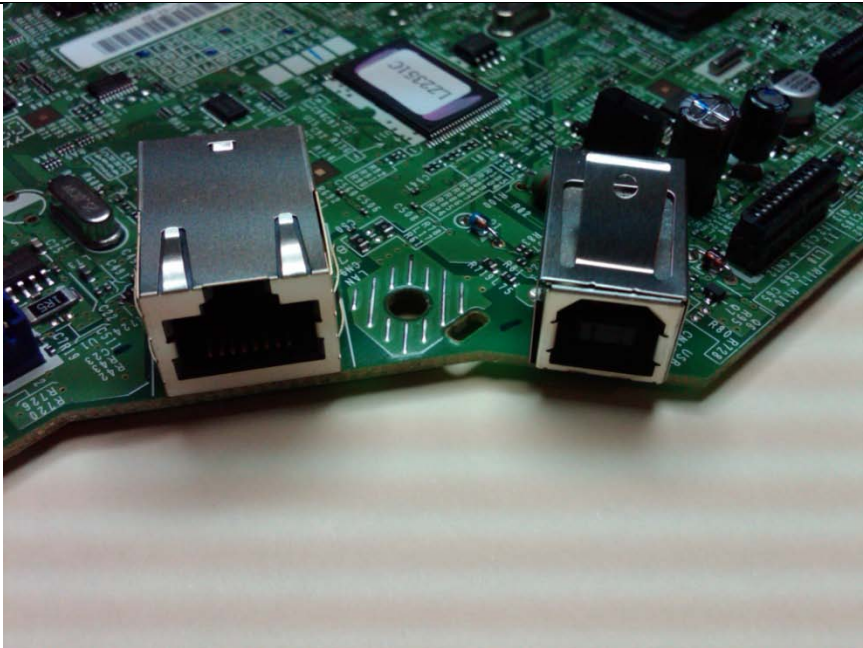


Brother MFC-5490CN Service Manual, p. 3-1



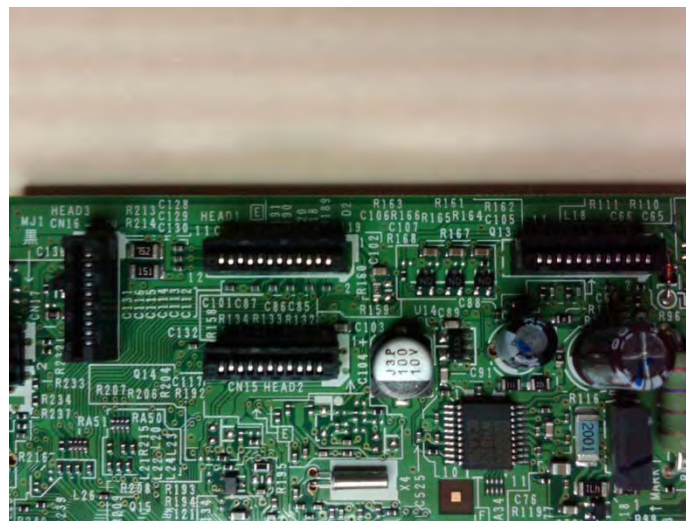
USB Serial Port and Ethernet

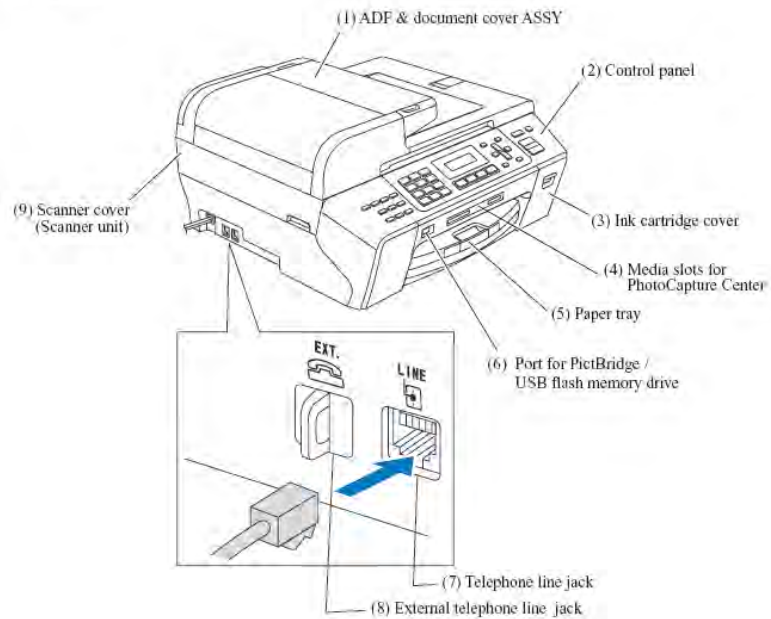
U.S. Patent Nos. 6,337,746 & 6,618,157



ASIC CPU

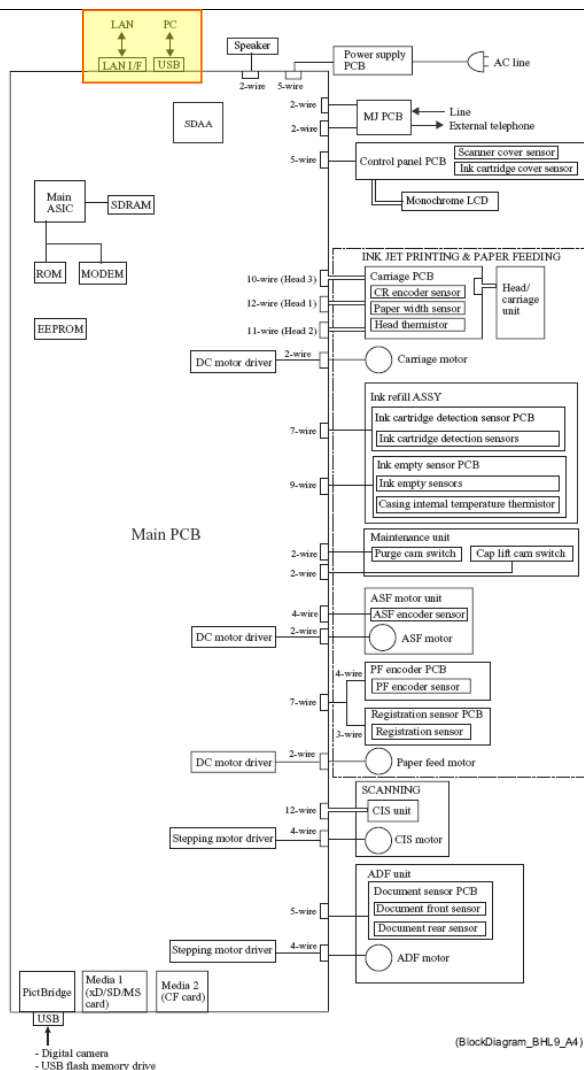




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Brother MFC-5490CN Service Manual, Appendix 5

## U.S. Patent Nos. 6,337,746 &amp; 6,618,157

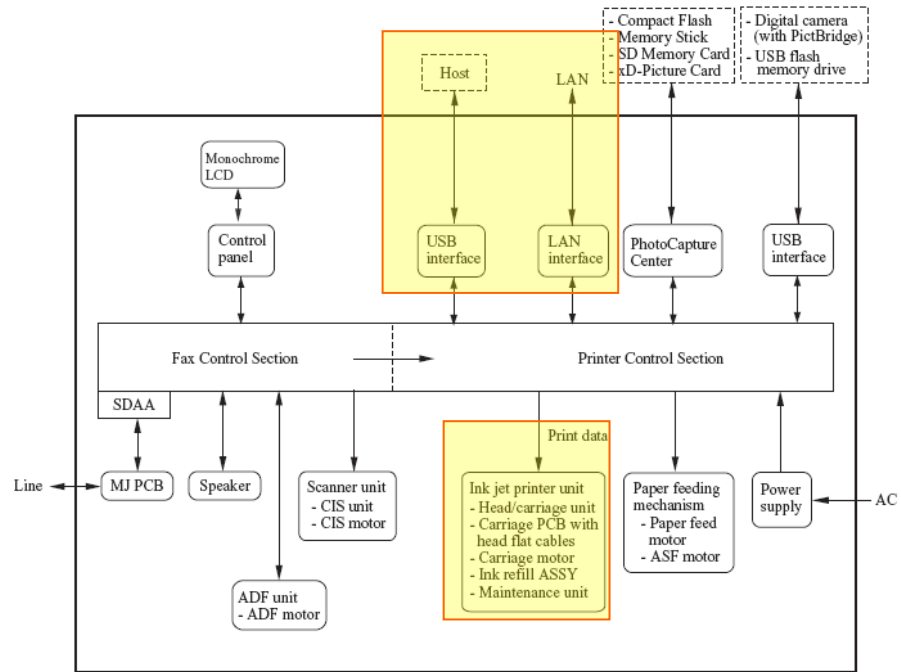


Brother MFC-5490CN Service Manual, p. 3-47

a digital printing device connected to said interface for printing the graphic image on the substrate on the basis of stored image data transferred from said random access memory, the digital printing device communicating with the data bus via the serial port;

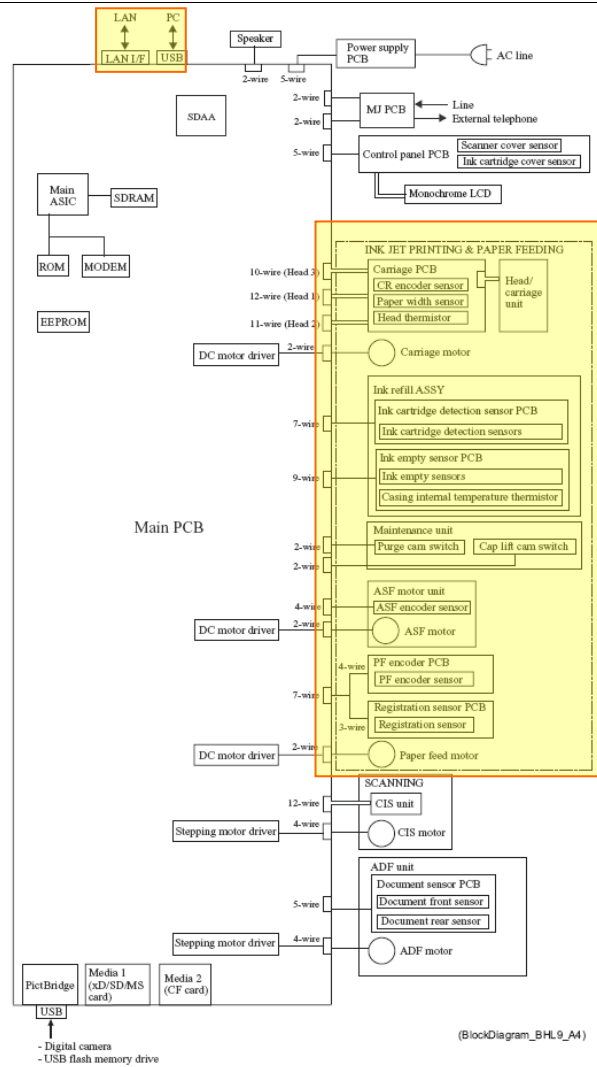
The Accused System and Method include digital printing devices, which receive formatted digital data. This data is provided to the laser heads on the printer, which in turn activates to fuse color toners on print substrates to produce color images. Signals are communicated via the serial port.

## U.S. Patent Nos. 6,337,746 &amp; 6,618,157

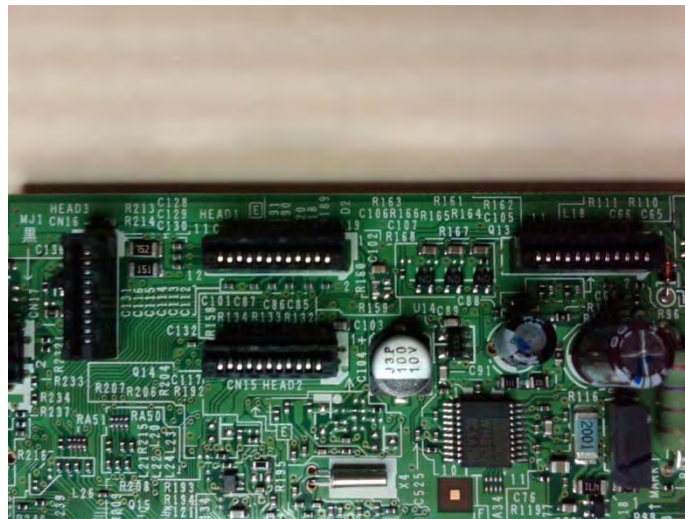


Brother MFC-5490CN Service Manual, p. 3-1

## U.S. Patent Nos. 6,337,746 &amp; 6,618,157

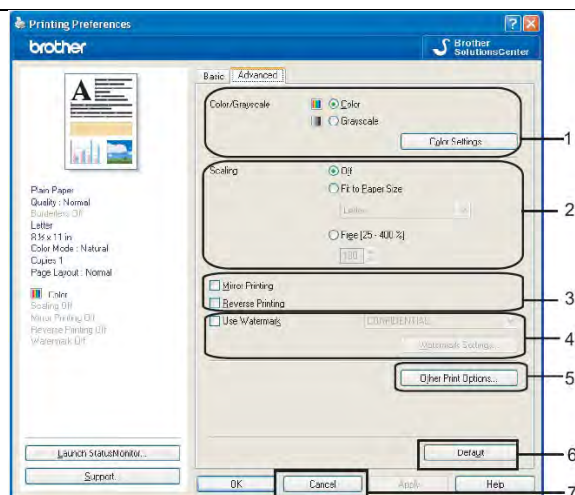


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## U.S. Patent Nos. 6,337,746 &amp; 6,618,157



[http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002356/cv\\_mfc6490w\\_usaeng\\_soft\\_d.pdf](http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002356/cv_mfc6490w_usaeng_soft_d.pdf), p.14 (3/24/11)

said printing device printing the graphic image in response to image data in a first format;

The formatted data at the printer engine is provided in a different format than the data stored in the RAM, namely a first format specific to the printing device's formatting requirements. The Accused System and Method is designed to print on a substrate. For example, the Accused System and Method is used for cut-sheet materials.

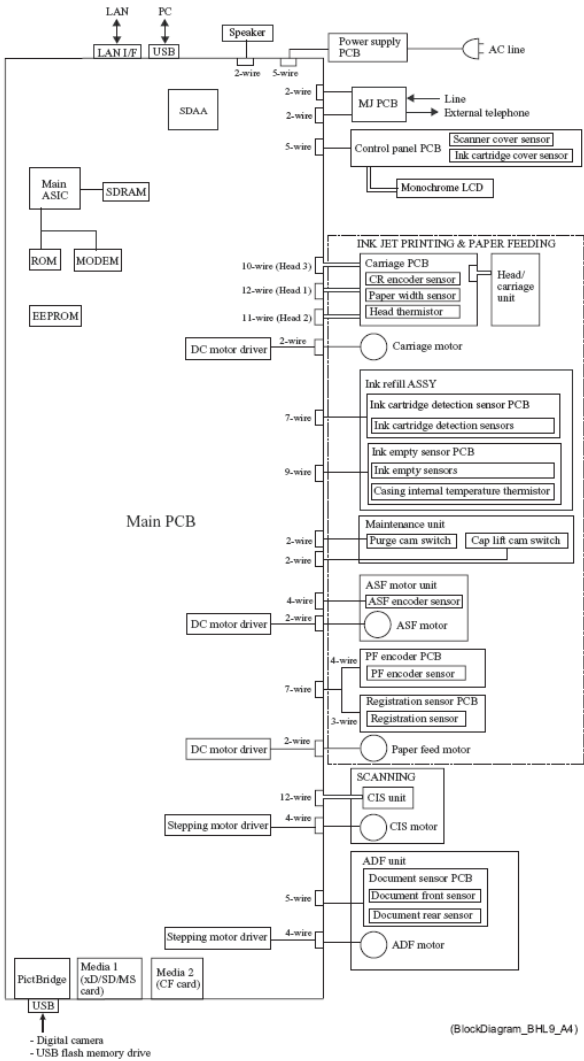
### Print

[back to top](#)

<b>Print Technology</b>	Color Inkjet Technology
<b>Maximum Printing Size</b>	8.5" x 14" (Legal)
<b>Consumable Type</b>	4-Cartridge Ink System
<b>Max. Black Print Speed (ppm)</b>	35ppm Black†
<b>Max. Color Print Speed (ppm)</b>	28ppm Color†
<b>Print Resolution (maximum dpi)</b>	Up to 6000 x 1200 dpi‡
<b>Borderless Printing</b>	Yes‡
<b>Standard Input Paper Capacity (sheets)‡</b>	Up to 150-Sheet Input Capacity
<b>Standard Interface(s)</b>	Hi-Speed USB 2.0, Ethernet, PictBridge Interface and USB Flash Memory
<b>Printer Driver Compatibility†</b>	Windows® / Mac OS®
<b>Mobile device printing app†</b>	Brother® iPrint&Scan free app download for wireless printing (JPEG images) from and scanning to your Apple® iPhone®, iPad™, and iPod touch® or Android™ smartphones
<b>Emulation(s)</b>	GDI
<b>Secure Print Function</b>	No
<b>Maximum Monthly Duty Cycle†</b>	4,000 Printed Pages
<b>Recommended Monthly Print Volume†</b>	250 - 2000 Printed Pages

<http://www.brother-usa.com/MFC/modeldetail.aspx?PRODUCTID=MFC5490CN&tab=spec>  
(3/24/11)

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[ 3 ] Head/carriage unit

The head/carriage unit consists of a front end (ink-jet head) and a back end (damper and air vent unit) as shown below.

The front end consists of metal plates laminated together and etched to form ink flow channels.

Piezoelectric ceramic actuators generate the spray pressure. The response of individual front ends to applied voltages and waveforms varies, however, because of the nature of piezoelectric materials, fluctuation in manufacturing accuracy, and other factors. The front end therefore leaves the production line with head property labels giving property data. The manufacturer writes this property data to the EEPROM on the main PCB incorporating this unit. Based on the property data of the front end, the processor drives piezoelectric ceramic actuators to insure consistent performance without fluctuations.

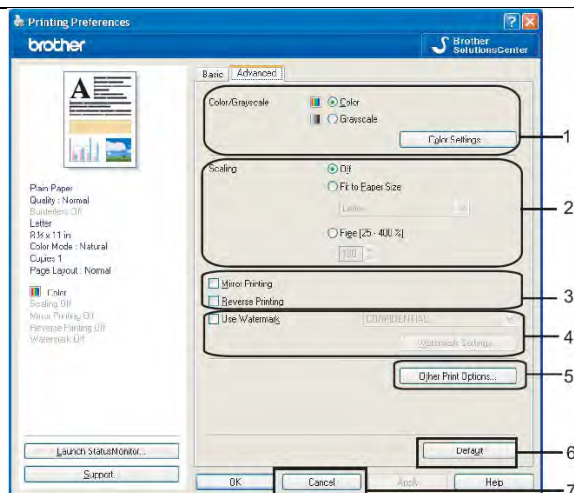
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said means for storing image data storing image data in a second format different

RAM on the computer stores image data. The format of the stored data is different than that which is sent to the printer.

## U.S. Patent Nos. 6,337,746 &amp; 6,618,157

from the first format; and



[http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002356/cv\\_mfc6490w\\_usaeng\\_soft\\_d.pdf](http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002356/cv_mfc6490w_usaeng_soft_d.pdf), p.14 (3/24/11)

#### Full Driver & Software Package

We recommend this download to get the most functionality out of your Brother machine. This is a comprehensive file containing available drivers and software for the Brother machine.

Language	Version	Size	Release Date	File
English	B1	40.90MB	03/04/2009	<a href="#">Download &amp; Information</a>

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#### Utilities/Windows® XP Home/Professional

##### BRAdmin Light

The Brother BRAdmin Light software is designed to run on Microsoft® Windows® and the Apple Mac OS® X environment. By using the BRAdmin light software it's possible to change some network settings. This software is not compatible with any Brother device using the NC-2200w print server.

[Click here to view OpenSSL License.](#)

Language	Version	Size	Release Date	File
English	1.18.0001	2.73MB	06/25/2010	<a href="#">Download &amp; Information</a>

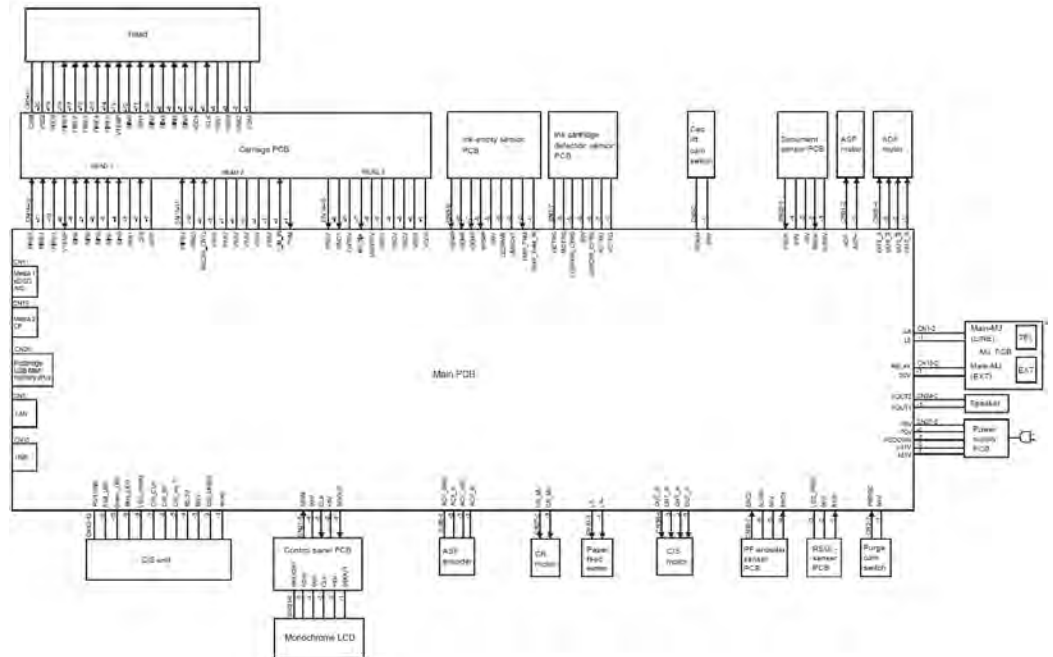
[http://welcome.solutions.brother.com/bsc/public/us/us/en/dlf/download\\_index.html?reg=us&c=us&lang=en&prod=mfc5490cn\\_all&dlid=&flang=English&os=7&type2=-1](http://welcome.solutions.brother.com/bsc/public/us/us/en/dlf/download_index.html?reg=us&c=us&lang=en&prod=mfc5490cn_all&dlid=&flang=English&os=7&type2=-1) (3/24/11)

said means for transferring stored image data comprising conversion means for converting image data in the second format into image data in the first format by multiplexing different portions of the image data in the second format and for delivering image data converted into the first format to said printing device.

Image data stored in RAM is converted and formatted (including multiplexed) for delivery to the print engine over data interfaces.

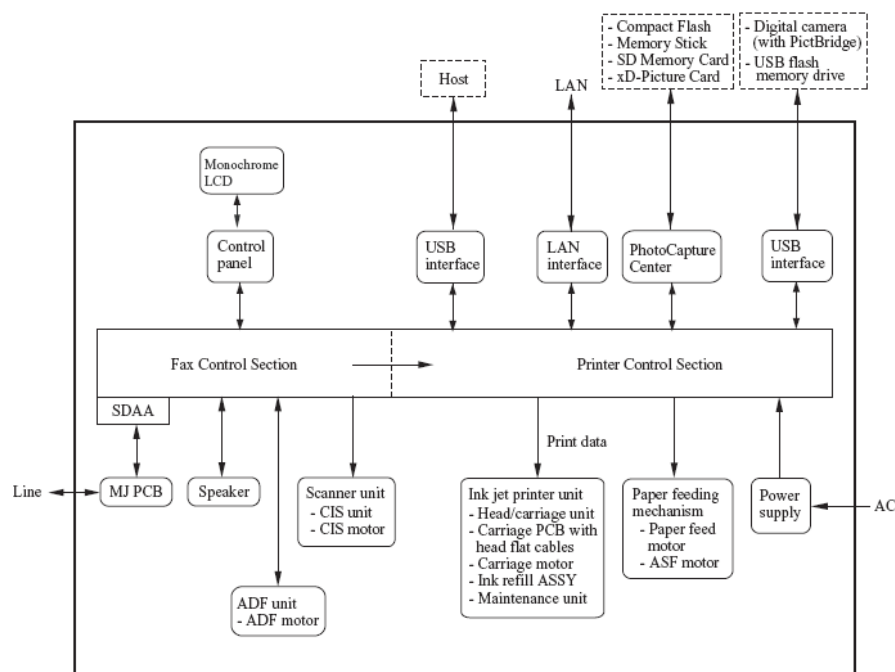


## U.S. Patent Nos. 6,337,746 &amp; 6,618,157





## U.S. Patent Nos. 6,337,746 &amp; 6,618,157



Brother MFC-5490CN Service Manual, p. 3-1

2. The apparatus according to claim 1 wherein said means for storing image data are operative for storing a quantity of image data sufficient to print the graphic image on the entire substrate, and said means for transferring are operative for continuously transferring the quantity of image data sufficient to generate the graphic image on the entire substrate.

The Accused System and Method is driven by a computer containing a motherboard with a data bus and memory. The computer is controlled by an operating system. Images are stored in RAM. The RAM on the computer is operative to store a sufficiently large amount of image data to print an entire color graphic image on the surface of the full substrate. The interface card transfers the entire quantity of image data for generating the graphic image on the entire substrate without reloading RAM or ceasing print operations.